

WHAT IS CLAIMED IS:

1. A ranging apparatus which determines distances to objects by using planar positions of said objects in images  
5 which are obtained by plural image acquiring means comprising:  
plural cameras that function as said plural image acquiring means,  
plural distortion correction means to correct distortion of images taken by said cameras wherein said plural  
10 distortion correction means are made for progressively determined ranging distances of said object,  
a corrective computation means which generates corrected images by using said distortion correction means, being corrected for eliminating distortion caused by optical  
15 systems used for said cameras, corresponding to said progressively determined ranging distances in which said images are taken by said image acquiring means,  
a corrected image selection means which selects most appropriately corrected image among said corrected images and;  
20 a ranging computation means which computes a distance to said object viewed in said corrected image selected by said corrected image selection means.
2. A ranging apparatus according to Claim 1, wherein;  
25 said corrected image selection means selects a corrected image which has best coincidency between said object specified in reference images which are corrected images, being generated by said corrective computation means, of said acquired images taken by one of said cameras and said object  
30 specified in comparison images which are corrected images, being generated by said corrective computation means, of said acquired images taken by one of the other said cameras,  
of which said coincidency is evaluated for picture

elements that compose an image of said target in said reference image against an image of said target that is searched over picture elements, being included in said comparison image, corresponding to an area shifted by a parallax to said object  
5 given for said progressively determined ranging distance in which said reference image and said comparison image are generated.

3. A ranging method which determines distances to  
10 objects by using planar positions of said objects in images which are obtained by image acquiring means comprising:

a first step wherein plural cameras that function as said image acquiring means take images of a target,

a second step wherein plural corrected images are  
15 generated from images acquired by said image acquiring means after eliminating distortion caused by optical systems used for said cameras that function as said image acquiring means wherein said distortion is computed by said plural distortion correction means which are made for progressively determined  
20 ranging distances of said object,

a third step wherein a corrective image is selected among plural corrective images generated in said second step and;

a fourth step wherein ranging distance to said object viewed in said corrected image selected in said third step is  
25 computed.

4. A ranging program by which a computer system determines distances to objects by using planar positions of said objects in images which are obtained by image acquiring  
30 means, wherein said computer system functions as;

plural distortion correction means to correct distortion of images taken by plural cameras that function as said image acquiring means wherein said plural distortion

correction means are made for progressively determined ranging distances of said object,

5 a corrective computation means which generates corrected images by using said distortion correction means, being corrected for eliminating distortion caused by optical systems used for said cameras, corresponding to said progressively determined ranging distances in which said images are taken by said image acquiring means,

10 a corrected image selection means which selects most appropriately corrected image among said corrected images and;

a ranging computation means which computes a distance to said object viewed in said corrected image selected by said corrected image selection means.

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